Volunteer Firemen

JANUARY
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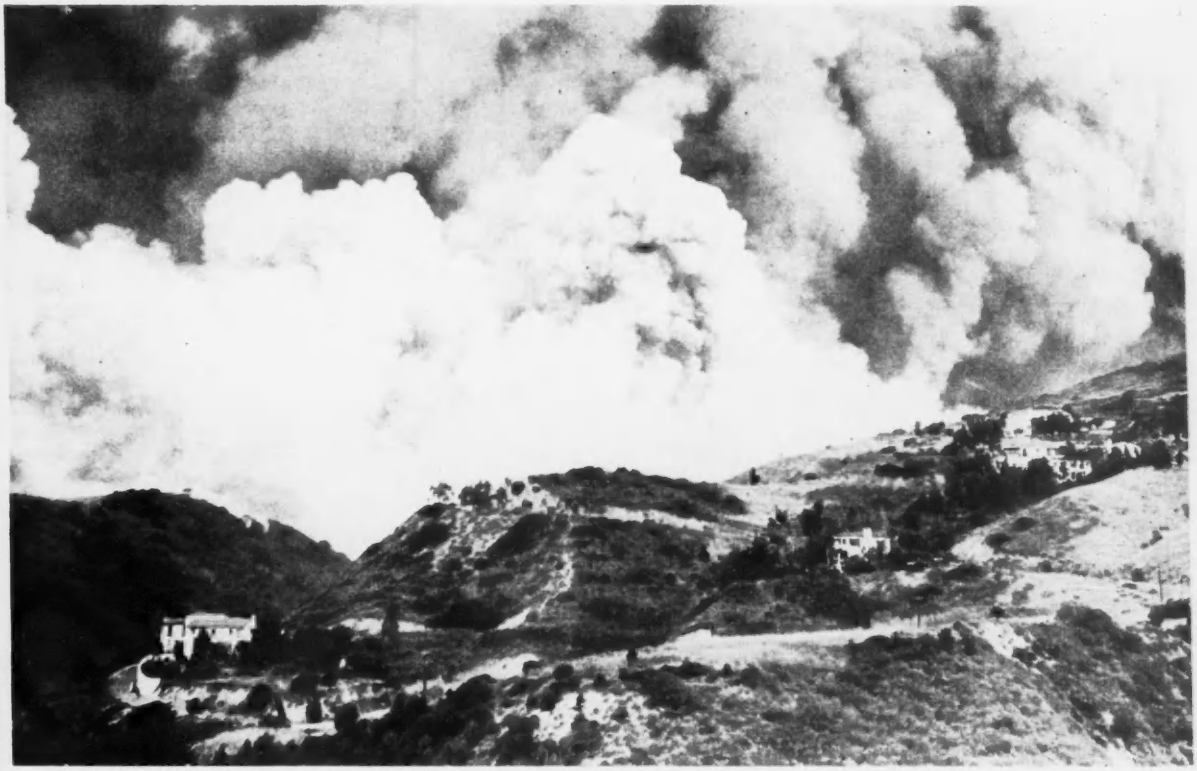
NATIONAL FIRE PROTECTION ASSOCIATION
60 Batterymarch Street INTERNATIONAL Boston, Massachusetts



Sweeping down Las Tunas Canyon and threatening valuable estates near Santa Monica, the forest fire shown is typical of those which swept Southern California Thanksgiving Day.

SOUTHERN CALIFORNIA'S THANKSGIVING DAY FIRES

LIFE long residents of Southern California described the fires which started there on November 23, and burned throughout Thanksgiving Day, as the worst that they remembered. The woods on the hills and mountains surrounding the Los Angeles area mean protection against both floods and drought, and forest fires are more than an ordinary menace. The latest fires did damage estimated at $3,250,000 including watershed values, probably constituting the largest single fire loss of the year 1938. The whole series of fires were aided by a combination of high winds and low humidity and swept over 100 homes and camps in their path. Among those whose homes were damaged or threatened were many whose names are well known in motion picture circles. The largest building loss resulted from the destruction of the large and fashionable Arrowhead Springs Hotel near San Bernardino with a loss of $325,000.

The various fires were fought by city, county, state and federal forest agencies and fire departments. In addition to the weather conditions, the greatest handicaps to the firemen were the mountainous nature of the territory burned over and the general lack of water supplies for fire fighting. At points where even limited water supplies were available, the fire departments were usually able to effectively check the flames. Since the fires there has been public interest in the need for fire reservoirs and water mains in the mountain areas, as has long been advocated by fire officials.

One of the most serious fires started within the Los Angeles city limits, at a point four miles from the Pacific Ocean and 28 miles from the central business district, when a rancher carelessly tossed hot coals into a canyon. The north wind was blowing 38 miles

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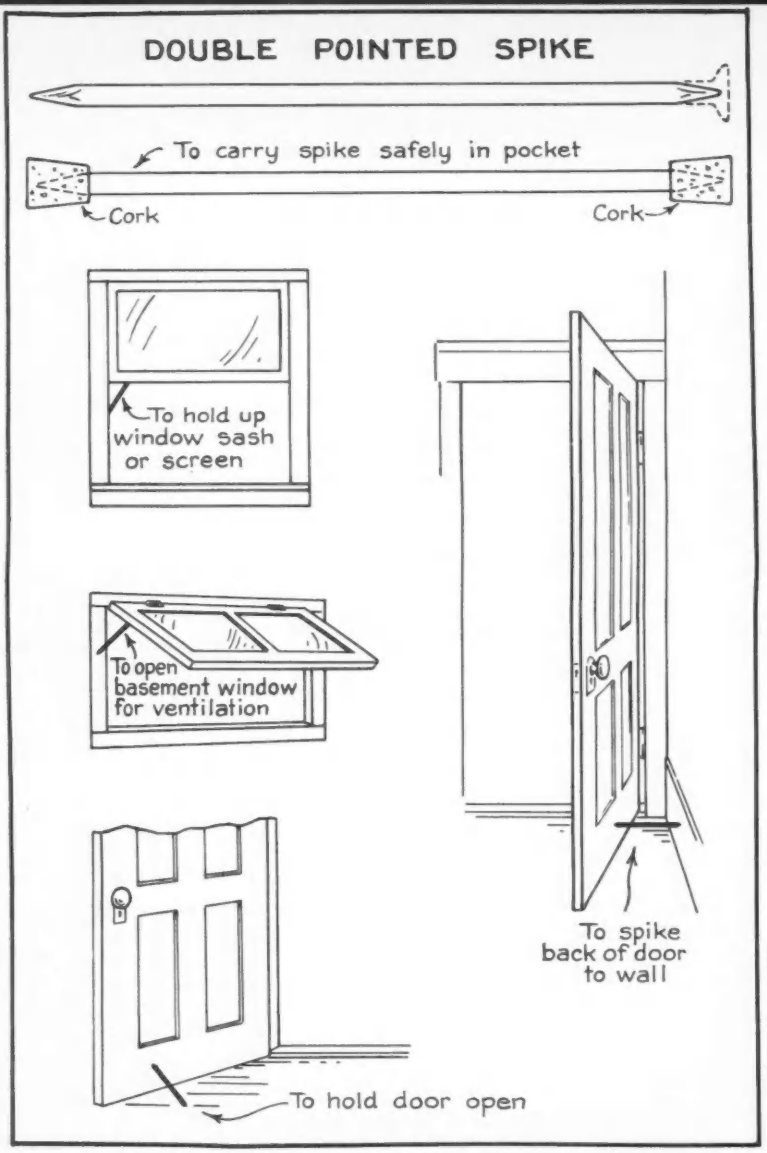
DOUBLE POINTED SPIKE
To carry spike safely in pocket
Cork
Cork
To hold up window sash or screen
To open basement window for ventilation
To spike back of door to wall
To hold door open

A handy fire tool suggested by Captain H. W. Backman, Secretary, Massachusetts Fire Department Instructors' Association. It is made by filing the head from an ordinary small spike until a second point is formed. It may be used as shown to keep windows open when cords have burned away, to hold basement windows open for ventilation and to hold a door open when furniture must be moved or water swept through it.

an hour at the time and within two hours the fire reached the coast highway. Here were located hundreds of small week-end cottages. These were so close together that when one started the fire quickly spread to adjoining places. In all, this fire burned over about 15,000 acres of which two-thirds were within Los Angeles city limits and about 4300 acres were within unincorporated territory of Los Angeles County. Thirty-two buildings within the city limits and 116 others in county areas were destroyed.

The city of San Bernardino is about 50 miles west of Los Angeles. The fire which covered the most territory started in the forest district bordering on the north of this city, when a cabin high on Strawberry Peak took fire. The fire swept down the side of the mountain so fast that it was impossible for the fire fighters to make any stand. In this fire the Arrowhead Springs Hotel was consumed. The fire spread west toward Los Angeles and east and south. A number of cabins in Waterman Canyon to the west were destroyed. On the south the fire entered the San Bernardino city limits and threatened the residential district. City firemen and state and federal forestry made a stand which saved the district. The only loss within the city limits was two small sheds. The city fire department also saved one of the water department wells and storage reservoirs. Besides regular firemen and C. C. C. crews, 1400 men were recruited to fight this fire which destroyed 50,000 acres of watershed growth and burned for three days in all.

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The "Conflagration" at Anchorage, Alaska

NEWSPAPER accounts in October of a conflagration in Anchorage, Alaska, have been followed up, and while the fire in question was not a conflagration in the strict sense, it was the largest for some time in that part of the world. Fire in a railroad supply car spread to one of the warehouses of the Alaskan Railroad plant which is about a mile outside the city. Information on the fire shows it to have a number of features of special interest.

The railroad and city fire departments prevented the spread of the fire to the main railroad shops and other structures valued at hundreds of thousands of dollars. At the start the fire would have been quickly controlled had not a switching engine, sent to move the burning car, dragged away the hose lines which were being used to fight the fire. One exciting incident during the fire was the bursting of a barrel of red lead in the warehouse. This painted most of the firemen as well as a large portion of the lumber shed a bright red. Each man thought that his fellows had met with an accident and were bleeding to death.

The plant in which the fire occurred consists of a number of large closely grouped frame structures outfitted to serve the 400 mile Alaskan Railroad system. The burned warehouse covered an area of approximately 300 feet by 40 feet and was equal in height to a three story building. The main shop was approximately 600 feet long and 90 feet wide and was separated from the warehouse by the width of a single railroad track on which the car where the fire started was standing. On the

opposite side of the warehouse was a recently constructed lumber shed 100 feet long and 30 feet wide. This structure caught fire several times but was saved. The buildings had metal roofs.

The fire started at 7:07 p. m. Sunday, October 23, from an unknown cause. When the fire apparatus arrived the fire was confined to the car in which it originated except for a slight blaze along the loading shed at the side of the warehouse. The watchman on duty, with other employees, was getting small lines through the windows of the shop on to the burning car. The plant fire brigade brought a line from the high pressure pump in the shop around the end of the burning car. The city pumper hooked up to a hydrant and a line was taken between the shop and the warehouse a distance of about 400 feet and was taken into the car. One of the small lines was taken across the track so that the fire was well surrounded.

It was just at this moment, as the fire appeared to be under control, that without warning, the cars gave a lurch and started to move. A railroad engine had been sent to pull the burning cars away from the building and apparently, due to the excitement, the man operating the locomotive forgot to see that everything was cleared. When the cars went they dragged the hose lines with them. The line from the city pumper was pulled off at the pump and dragged up the track for several hundred feet. The pump operator thought that the hose crew was trying to stretch the line too far and tried his best to outpull them. He didn't know that he was having a tug of war with a railroad locomotive.

By the time other lines were laid, the fire had extended into the warehouse building. Helped by gusts of wind the fire traveled underneath and along the main floor as well as through the attic, which left little to be done except to protect the other large buildings.

Detailed figures as to the loss from the fire are not available. Newspaper estimates vary $100,000 to $200,000.

Pictures, Inc.

Nine beach homes, two apartments and a cafe were burned along the main coast highway north of Santa Monica, California. They were ignited by flying brands from the fire which swept from the mountains four miles away down to the ocean in two hours.

Shown furiously burning is a 400 foot long frame supply warehouse of the Alaskan Railroad near Anchorage, Alaska. At the left may be seen one end of an exposed lumber warehouse. This structure and the main railroad shops also close to the burning warehouse were saved by the plant fire brigade and the city fire department.

A Study of Chimney Fires

EACH winter most fire departments are more or less bothered by chimney fires. In the old days the by-laws of practically every community compelled owners to have their chimneys cleaned regularly as a fire prevention measure. However, it is well known that today most persons let creosote and soot accumulate in a chimney until it catches fire and burns out, occasionally setting fire to a building. Fire Marshal H. G. Bowering of Vancouver, B. C. has made a careful study of chimney fires in his city. Mr. Bowering analyzed 522 such fires. The striking thing brought out in the study was the effect of certain kinds of fuel upon the prevalence of chimney fires. In the buildings where wood alone was used as fuel, there were 229 fires or nearly 44 per cent of the total reported. Buildings using both coal and wood had 174 or 33 per cent of the fires. Buildings using sawdust had 94 fires. Where coal was used alone there were but 14 fires. There were only 7 fires where oil was used as the only fuel and oil and wood used together caused 4 fires.

These figures bring out strikingly the fact that the use of wood as a fuel is responsible in a great measure for chimney fires. Probably many fire chiefs might add that the use of bituminous or "soft" coal in systems not designed for its use has also added to their chimney fire problem.

STATEWIDE *Training Programs* FOR 50,000 FIREMEN

IN Arkansas, Nebraska and Rhode Island, firemen's training programs were undertaken for the first time during 1938. In Canada, the Province of British Columbia held its First Annual Fire School.

These are just some indications of the continued interest in firemen's training programs on a state-wide basis which last year reached some 50,000 firemen.

In 1936 the State of Maryland put Robert B. Criswell of the Ohio Inspection Bureau in charge of its training program. Mr. Criswell has made a remarkable record, greatly increasing the scope and effectiveness of the Maryland program. This year Wisconsin has taken a similar step, securing the services of James W. Just. Like Mr. Criswell, Chief Just is an experienced fire department instructor, one of those who served on the staff of a number of insurance inspection bureaus in the Middle West.

Pennsylvania has set up a State Public Service Training Institute of which Rollin B. Posey is Principal. California has completed its first year under its new training set-up of which David F. Glines, former Chief of the City of South Gate, is in charge assisted by three other fire department instructors. In Nevada and Wyoming instructors from the Los Angeles Fire Department have worked on an itinerant basis in many fire departments. Colorado will supplement its Annual Short Course next year through the employment of Assistant Chief V. E. Roberts of Denver as itinerant instructor. Only a few states such as Idaho, New Hampshire, Vermont, Montana and South Carolina, are without programs of any sort at present.

THE vitality of interest in firemen's training work is shown by the fact that there are active associations of drill masters and fire department instructors meeting regularly in such states as Connecticut, Massachusetts and Virginia. In Texas the instructors are kept posted through a quarterly bulletin service from the Texas A. & M. College where the annual school is held. The International Association of Fire Department Instructors of which J. Ray Pence of Stillwater, Okla., is secretary, has kept up a steady barrage of mimeographed material to its members all year.

ANNUAL SHORT COURSES

	Years Held	Cities Represented	1938 Attendance
Alabama	3	11	35
British Columbia	1	30	115
Colorado	8	45	225
Florida	9	54	178
Georgia	4	70	400
Illinois	14	156	519
Indiana	5	58	415
Iowa	14	92	421
Kansas	8	41	121
Louisiana	9		50
Maryland	9	57	154
Michigan	10		200
Minnesota	11	69	182
Nebraska	1	98	380
New Mexico	9	26	123
New York	8		125
North Carolina	10	76	324
Oklahoma	5	15	20
Oregon	9		200
Rhode Island	1		100
South Dakota	9		700
Texas	9	245	540
Washington	8	107	533
West Virginia	8	56	234
Wisconsin	5	81	318
Wyoming	6		125
Total Attendance			6,737

A large number of drill masters and fire department instructors, principally from the Middle West, meet each year at Memphis, Tenn. The conference is sponsored by Richard E. Vernor, Manager of the Fire Prevention Department of the Western Actuarial Bureau, and the Memphis Fire Department. The 1938 conference was attended by 182 instructors from some 27 states.

During the past year the United States Office of Education has set up an advisory committee of fire chiefs and fire fighters to help their work of firemen's training and Dr. Frank Cushman, known to many firemen because of his participation in firemen's training work all over the country during the last five years, is in charge of the fire training. In December Lyman S. Moore went to Washington as Consultant in Public Service Training to the United States Office of Education. He was formerly Director of the Institute for Training in Public Administration of the International City Managers' Association and brings to the job a fine background of experience and enthusiasm.

THE accompanying table shows the attendance at the annual short courses given during 1938. This is by no means the whole story. Regional schools were held in more than 18 states and provinces and 17 other states had programs whereby instructors were made regularly available to local volunteer fire departments. The regional school programs reached at least 11,000 firemen and contacts by instructors would account for training of at least 32,000 more.

These figures cover only the state programs. Drill masters of large cities have contributed generously to the advancement of the programs for the smaller communities and many have also carried on in-service training work in their own departments. Among the large cities, New York unquestionably had the toughest training program with the job of training some 1767 new men during 1938.

As training agencies, state and regional short courses fall far short of what should be ultimately attained. Several states have set up a minimum number of hours of instruction for which credit is given through instruction furnished by itinerant instructors or other firemen who have completed instructor training. The basic training given by the programs in Arkansas, Massachusetts and Oklahoma covers approximately 10 hours' instruction. Another typical program in Maryland establishes a minimum of 40 hours. Members of volunteer fire departments in Delaware are given 4 years to obtain some 144 hours' instruction. The West Virginia course embraces 60 hours of training in a few weeks, one of the most substantial courses currently being offered. J. W. Parry, in charge of the Michigan program, hopes to go all these one better by supplementing this elementary training by an advanced course open to 200 fire department officers only. He will employ the extension course in Fire Administration of the International City Managers' Association.

Havana, Cuba

HAS ONLY 20 FIRES A YEAR

By Horatio Bond, Chief Engineer

THOSE of us familiar with fire conditions in cities and towns of the United States and Canada are likely to be impressed by the contrast which is presented by the cities of the countries of Central and South America. In November the First Pan American Congress of Municipalities was held in the City of Havana, Cuba. This was a meeting of mayors, city managers, college professors and other experts on municipal government from all of the participating countries. I had the privilege of being one of the delegates from the United States, having been invited to present a paper and lead a discussion on fire fighting and fire prevention based on our United States practice.

This gave me an opportunity to observe certain fundamental differences in fire conditions as they present themselves in a city like Havana as compared to a United States or Canadian city.

Mayor Daniel Hoan of the City of Milwaukee headed the delegation of United States mayors. Milwaukee has a population of nearly 600,000 which is almost exactly the same size as the City of Havana. Milwaukee would certainly be classed from a fire standpoint as better than average for United States cities. The fire department there answers calls to nearly 4,000 fires a year. I think Mayor Hoan would be quite pleased if his department had no more work to do than the Havana Fire Department which answers an average of less than 20 fires a year.

THROUGH the courtesy of its Chief, Col. Anselmo Lozano, I had an opportunity to visit the Havana Fire Department. It has six stations and a personnel of 200 men. The department is organized much the same way as ours with the two-platoon system, a fire prevention bureau, and a good fire department shop. Apparatus is American made.

The primary reason for the small number of fires in Havana is not hard to observe. Very little wood is used in the construction of buildings. Wall and floor construction is masonry. Tile is universally used for finish flooring. Wood is not even used in roof construction. This is more or less typical of the majority of cities in Central and South America. Wood sufficient for building operations is available in only a few of the coastal cities of Ecuador. In many locations wood would be an unserviceable building material, even if available, because it is attacked by termites.

The Prado, a principal business street of Havana. All buildings are of masonry construction, no wood being used. Stores are on lower floors with living quarters above.

For another thing, little heating equipment is necessary. This largely eliminates such hazards as the storage of fuel and hot ashes. Many small fires are not reported at all because less elaborate fire alarm and telephone facilities make it inconvenient to do so. Small fires may go unnoticed in a city like Havana where the fire can burn without serious exposure hazard to buildings.

One powerful factor in keeping down the number of fires in buildings is the uniform practice of putting immediately in jail anyone who has a fire. Such an offender stays in jail while the fire is investigated. Fires are regarded as a crime against public safety and there is none of the tolerance of careless fires which is a characteristic in United States and Canadian cities.

THE City of Havana has the only paid fire department in Cuba. The others are largely volunteer. Santiago de Cuba is the second largest city on the island. Chief Jose Adsuar Pozzi came over to Havana to attend the Congress and hear my paper. I learned from him that he has 20 paid men and 125 volunteers. This serves a city with a population of about 100,000. He has only about 12 fires a year.

In a few Central and South American cities fire fighting is a function of the military authorities. A few have paid municipal departments. Most, however, are volunteer. The principal cities of such countries as Chile and Peru have volunteer fire departments which are substantially identical with those in our Middle Atlantic states even to the provisions where members pay dues and where membership in the department is necessary if you are to be a person of any standing or consequence in the community.

SUPPLYING *Long Lines*

FOR FIGHTING RURAL FIRES

THE work of supplying long hose lines is very important in suburban and rural fire fighting. One of the best solutions of the problem is the practice of relaying water through several pumpers. Relaying water from a distant supply through several pumpers was a common practice in hand engine days. In fact, early volunteer fire companies were noted for their attempts to demonstrate their pumping prowess by "washing" the next engine in line. That is, each company attempted to pump more water into the next engine than it could pass along, causing an overflow which was intended to humiliate the rival crew in the eyes of the spectators. With the introduction of powerful motor pumpers, relays are now used mostly in suburban and rural areas where it is necessary to supply unusually long lines of hose.

A fire a long distance from the water supply means a hard pumping job for a single pumper. High pressures must be employed to overcome the friction loss in a long line of hose. Where a second pumper is available it is usually a good plan to use it in a long line to divide up the pumping load. This allows each machine to operate at lower pressures and reduces the likelihood of burst hose and other operating difficulties.

There are complicated hydraulic formulas showing the exact spot in a long line of hose at which the second engine should be placed for maximum efficiency. For most practical work fire fighters need not stop for such exacting computations in order to put over a good relay job. The important thing is to get a good stream in service as quickly as possible. A few simple pointers, easily remembered, will make relay work fast and practical.

First, with long lines the nozzle size must be kept down. Large nozzle openings require a much greater flow of water to give an effective stream and therefore the friction loss is correspondingly greater. For relay work in rural sections the best practice is to stick to a 1-inch nozzle tip. With water discharging from this tip at a pressure of 45 pounds per square inch, the stream will throw about 200 gallons a minute. The friction loss will be about 10 pounds for every 100 feet of 2½-inch hose which makes any layout using a 1-inch nozzle easy to figure. If a 1⅛-inch nozzle is used the friction loss to be overcome will be 50 per cent greater.

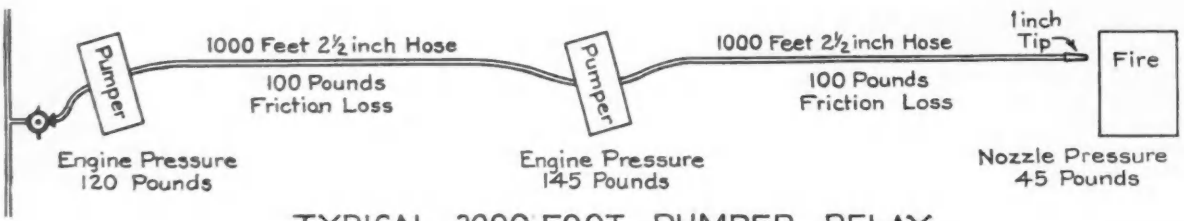
Second, time is important. So far as possible each situation where relay pumping may be necessary in the event of a fire should have been studied in advance. This will eliminate much confusion and will allow members to know just what they would be expected to do in making a relay at a fire. Also pump operators will have a general idea as to the pressure their machines would be expected to deliver.

Third, all unnecessary shifting and movement of apparatus when setting up a pumper relay should be avoided. The first pumper should lay its line and then stop. This engine need not return to the hydrant. The second pumper should complete the line and then go to the hydrant or other source of water supply. This plan involves a minimum movement of apparatus. Any attempt to shift pumpers about in order to locate them so that the pumping load is exactly divided may result in needless confusion and loss of time.

While the second pumper must supply the nozzle and therefore has the hardest pumping job, a difference of only a couple of hundred feet in the length of hose supplied by each pumper will seldom prove of major importance.

ONE special precaution should be mentioned. Relay work in rural sections frequently requires the use of narrow country roads and lanes. The first firemen to arrive must make it their duty to keep the lanes clear for the fire apparatus. Automobiles should not be allowed to obstruct the movement of the apparatus between the hydrant and the fire because it is essential that a pumper get back to the hydrant after the line is laid. Of course in some cases it is impossible to drive the apparatus the entire distance to the fire and it becomes necessary to lay out a part of the line by hand. This, however, will seldom affect the position of the pumpers in a relay.

A typical pumper relay with hose laid from hydrant to fire would be made as follows: A hoseman from the first pumper takes a hitch around the hydrant and the apparatus lays a line toward the fire as far as the hose will reach. The pumper is stationed in a convenient position for operation and



TYPICAL 2000 FOOT PUMPER RELAY

the hose is connected to the pumper intake by means of a suitable connection. The second pumper upon arrival would connect a line to the discharge outlet on the first pumper and lay the balance of the line to the fire. After dropping off any ladders or tools needed, the second pumper would return to the hydrant to supply the line. Of course if a third pumper should be immediately available it could take the hydrant position and the second could remain near the fire.

If hose is loaded for a fire-to-hydrant layout the work of arranging a pumper relay is even more simple. In that case the first engine drops the nozzle end of the line at the fire and goes about half the distance toward the hydrant. The second engine completes the line to the hydrant.

With a 2000-foot relay using two pumpers to supply a 1-inch nozzle, neither engine has to operate at excessive pressures. If the pumpers are 1000 feet apart each engine will have to overcome about 100 pounds friction loss. To supply the second engine at a reasonable pressure the first pumper will operate at about 20 pounds above the estimated friction loss in the hose between the two pumpers or at about 120 pounds. The second engine must overcome the friction loss between itself and the nozzle and in addition provide a nozzle pressure of 45 pounds. Therefore, the second pumper will operate at a pressure of about 145 pounds. Any engine in reasonably good condition would have no difficulty doing this.

If the first pumper is taking water from a hydrant under good pressure the pumping job will be easier. However, in outlying sections where relays are most likely water must often be obtained at draft from ponds, cisterns or other similar sources. Where hydrants are available they are frequently on small size dead-end mains which give very little flowing pressure.

THERE are many fire departments throughout the United States and Canada which occasionally are forced to lay very long lines of hose to reach a rural fire but which only have one pumping engine available. Such departments are faced with the problem of overcoming or reducing the high friction loss in long lines without the advantage of relay pumping.

If sufficient hose is available it is possible to run two parallel hose lines siamesed into a single nozzle and thus materially reduce the friction loss. However, many times at fires there is neither sufficient hose available nor time in which to lay out double lines.

Fortunately there is a simple trick which every fireman should always keep in the back of his head for overcoming the friction loss in long lines of hose. That simple trick is to use a smaller nozzle tip. In fact this is the reason why rural apparatus usually carries nozzle tips in sizes down to ¾-inch, or smaller, for use with 2½-inch hose lines. In town or city fire fighting such small tips would be considered impractical for use with large hose but in rural work they are often life savers. It is possible for a 500 gallon pumper to supply a reasonably good stream through up to one mile of 2½-inch hose when using a ¾-inch tip. It would require three pumpers to supply the same nozzle pressure if a 1-inch nozzle tip was used. With a 1⅛-inch nozzle, four pumpers should be used for a line a mile long.

The accompanying table proves the importance of using small nozzle sizes to reduce friction loss in long hose lines. With the smaller nozzles less water is discharged at any given pressure and therefore the velocity of the water in the hose is reduced. This cuts down the amount of friction. A 1-inch nozzle operating at 45 pounds pressure will discharge close to 200 gallons of water a minute. A ¾-inch nozzle at the same pressure discharges only a little over 100 gallons of water a minute. For example, in order that one 500 gallon pumper may supply a line of 2½-inch hose a mile long the flow should not exceed 125 gallons per minute. At greater flows, the friction loss will be too great for a single engine to overcome. For this reason a ¾-inch tip would be necessary for an effective stream through any such excessively long line.

While the amount of water discharged by a ¾-inch tip may seem small as compared with the usual nozzle sizes employed with 2½-inch hose, this discharge under good working pressure actually provides quite an effective fire stream for rural work. One stream through a ¾-inch nozzle tip is equal to two strong streams from 1½-inch hose and is enough water to control many rural fires. Any fireman knows that it is better to have less water at effective pressures than a lot more water at low pressures. A few gallons from a booster pump at proper pressures will usually do much more work than hundreds of gallons of water spilling out of a larger nozzle under little or no pressure.

All of the above hose layouts are figured on a basis of level ground. For every foot of elevation up which water is pumped approximately 0.43 pounds extra pressure will be needed. In other words an extra pound of pressure will lift water a little over two feet. When pumping down hill a similar amount may be subtracted from the required engine pressure.

APPROXIMATE FRICTION LOSS AND DISCHARGE
With One Mile of 2½-inch Hose
(1 mile=5280 feet. Nearest distance by 50 foot lengths is 5300 feet)

Size of Nozzle Tip in Inches	Nozzle Pressure in Pounds	Discharge in Gallons Per Minute	Friction Loss Per 100 Feet	Total Pounds Friction Loss	Total Pounds Engine Pressure	No. Pumpers Required
1	45	198	10.	530	575	3
1	30	162	7.	371	401	2
⅞	45	150	6.	318	363	2
⅞	30	122	4.	212	242	1-2
¾	45	110	3.7	195	240	1
¾	30	90	2.4	125	155	1

A Problem Question
FOR JANUARY
Suggested for discussion at company and department meetings this month

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How can fire alarm systems be used to improve fire fighting cooperation between neighboring fire departments?

The answer to the problem question for December will be found on this page.

Volunteer Firemen

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Please notify us promptly of any change of address

January, 1939

IN almost any fire department there is a gradual turnover of members so that every department is occasionally faced with the problem of training new men. This involves two fundamental and different training jobs which are both necessary to turn out a first class fire fighter. The first job is to teach a new man the use of hose, ladders and other appliances. This is best done through a systematic training program. The other job is to teach him how to conduct himself and work efficiently under the trying conditions of stifling smoke and heat inside of a burning building. It is in this last and perhaps most important training job that an experienced officer or fireman should give the recruit the proper encouragement and guidance which will instill confidence during his baptism of fire.

There is frequently a tendency in the excitement of a fire for veteran fire fighters to go quickly to work and ignore a new man as so much extra baggage. The recruit is usually anxious to prove himself a good "smoke eater," but left on his own at his first smoky fire he is likely to get an unpleasant surprise which may cause him to doubt his ability to work in smoke.

Upon entering a smoky building for the first time, the new man may think that he is being smothered by the heat and smoke. This is often partly due to his own heavy breathing caused by excitement. He may also find that the visibility is very poor and that the smoke half blinds his eyes and makes them smart. He begins to build up an impression that he is in a trap and develops a fear of being overcome. If the more experienced men are busy at the nozzle or otherwise, the new man may decide that he will not be missed and go outside with rather shaken confidence.

If on the other hand a veteran "smoke eater" takes the new man in tow he should quickly learn some of the essential tricks of working in smoke. For one thing, under usual conditions, experienced firemen can work in smoke for a long time without fear of being overcome and if they work together they will be able to get out safely should conditions become too tough to endure. There is a certain amount of air which comes with the water in the hose so that a good hose crew can usually hold their position by gritting their teeth (perhaps mumbling a little profanity), and keeping their noses close to the stream.

The worst discomfort from smoke frequently comes with the initial exertion of making the stairs and getting the line into position before ventilation has been accomplished. Also by keeping down low the hosemen will have the advantage of any air available as the heat banks overhead.

With proper guidance the new firemen will quickly gain confidence and learn how to attack the various types of dwelling fires which form the bulk of the building fires encountered by most departments. When a single bedroom is badly involved he will know how to crawl in with a booster line, while the big line is being laid, and get his own ventilation by letting the stream strike and break the heated windows. Severe partition fires usually need ventilation at the top of the building but the fire fighter will be able to stay inside by occasionally retreating to a window for air. An attic fire may be hard to get at but it can usually be effectively attacked from below if properly ventilated above. Often the hoseman will find that he can slide into a hot but effective position for a few moments and kill a lot of fire before retreating for more air. Few fires can be well handled from the outside but the flames can generally be knocked down in a very few moments by working at close range.

LAST month 24 departments with 450 men joined the Volunteer Firemen's Section for the first time. In addition 46 fire departments with 967 men renewed membership. The total membership for the Section is now 612 departments and 13,587 firemen. The following including several industrial fire departments were enrolled during the past month:

Chowchilla Fire Department, Chowchilla, California.

Laguna Beach Volunteer Fire Department, Laguna Beach, California.

Associated Oil Company, H. J. Wilson, Superintendent of Fire Protection, San Francisco, California.

Hotchkissville Fire Company, Woodbury, Connecticut.

Grayslake Fire Department, Grayslake, Illinois.

Hammond Volunteer Fire Department, Hammond, Illinois.

Morton Grove Volunteer Fire Department, Morton Grove, Illinois.

Ball Band Plant Fire Brigade, Mishawaka, Indiana.

Mengel Body Company, Mill Fire Brigade, Louisville, Kentucky.

LaPlata Volunteer Fire Department, LaPlata, Maryland.

Barnstable Fire Department, Barnstable, Massachusetts.

Essex Fire Department, Essex, Massachusetts.

Rudyard Fire Department, Rudyard, Michigan.

Firth Carpet Company Fire Department, Auburn, New York.

Pelham Manor Fire Department, Pelham Manor, New York.

Verplanck Fire District, Verplanck, New York.

Roanoke Rapids Fire Department, Roanoke Rapids, North Carolina.

R. J. Reynolds Tobacco Company, Winston-Salem, North Carolina.

Apache Fire Department, Apache, Oklahoma.

Millersville Fire Company, Millersville, Pennsylvania.

H. J. Heinz Company, Pittsburgh, Pennsylvania.

Pittsburgh Plate Glass Company, Pittsburgh, Pennsylvania.

Cadott Fire Department, Cadott, Wisconsin.

Aluminum Company of Canada, Ltd., Quebec.

Membership in the N.F.P.A.
for Your Company or Department

Membership with unusual advantages is available to fire companies and fire departments through the Volunteer Firemen's Section of the National Fire Protection Association. Here's the simple plan:

Your company or department applies for regular membership in the N. F. P. A. and pays the minimum $10 annual dues. When the application is accepted, the company or department begins to receive at headquarters the monthly bulletins and publications sent regularly to all members of the Association. Also comes a 100-page *Quarterly* Magazine (four times during the membership year), a volume of annual Proceedings (over 400 pages), a Directory of members, and an Index to printed publications. You thus build up a nice fire library. Membership also places at the disposal of the company or department the Information Service of the Association which from its voluminous files answers special inquiries from members free.

Membership Plan Includes VOLUNTEER FIREMEN for Your Company or Department

The publications and services enumerated above are what regular N. F. P. A. members get for their $10 annual dues. The special membership plan of the Volunteer Firemen's Section provides that *in addition* you get VOLUNTEER FIREMEN magazine for the men in your company or department. (The $10 minimum dues allows you to enroll up to 20 men to receive the magazine: 50c per year extra for each man in excess of 20 enrolled.) VOLUNTEER FIREMEN is mailed to each man's home address.

USE THIS COUPON FOR SPECIAL MEMBERSHIP PLAN

If your company or department is now a member, pass this coupon to some other company or department which might like to enjoy the benefits of this plan.

National Fire Protection Association, 60 Batterymarch St., Boston, Mass.:
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(Chief, Sec'y, Capt., etc.)

Name of Company or Department .....

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National Fire Codes
for Flammable Liquids and Gases

360 pages, 6 x 9 in.
$1.50 each postpaid

Fires in flammable liquids and gases are tougher and more dangerous than the ordinary run of alarms answered. These codes show primarily how the fires may be prevented. If you know the safeguards for each of these hazards, it will also enable you to promptly and safely handle these fires when they come along.

PARTIAL CONTENTS:

Flammable Liquids Ordinance
Marine Oil Terminals
Freeing Tanks of Flammable Vapors
Tank Truck Ordinance
Oil Burner Regulations
Kerosene or Oil Stoves
Gasoline Stoves
Gasoline and Kerosene on the Farm
Liquefied Petroleum Gas Code (Propane and Butane)
Compressed Gas Systems
Liquefied Petroleum Gas Tank Trucks
Motor Craft, Pleasure and Commercial
Airplane Fueling Operations
Dry Cleaning and Dry Dyeing
Paint Spraying and Spray Booths
City Gas, Installation, Piping, Fittings
Odorization of Gas
Acetylene for Lighting, Heating and Cooking
Gas Systems for Welding and Cutting
Anaesthetic Gases and Oxygen in Hospitals
Refrigeration Safety Code
Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids

National Fire Protection Association INTERNATIONAL
60 Batterymarch St., Boston, Mass.

For Yourself, Too

Wouldn't You, Personally, Like to Be a Member of the N.F.P.A.?

Your fire company or department may or may not be a member of the N. F. P. A. But, if you choose, you may have a membership in the N. F. P. A. enabling you personally to enjoy its unusual advantages.

Membership will help you in your fire work, to answer questions asked by the public about fire. It will help you if you're studying for promotion or if you are just trying to build up a good fire library.

Dues are only $10 per year and this is the only expense. There is probably no way you can do so much by yourself in fire work for so little money. Last year members received 109 separate publications, 44 items regularly and 65 others sent on request. VOLUNTEER FIREMEN is sent to any member requesting it at no extra cost. As a member you would receive the publications and services listed below.

Quarterly Magazine. Four issues of an authoritative journal, 100 pages each handsomely printed and profusely illustrated, containing valuable articles on fires, fire hazards and fire prevention. Sample free.

News Letter. A monthly bulletin to members advising them of latest developments, new and important publications available. Fifty-three such publications were brought to members' attention through this News Letter last year.

Proceedings of Annual Meeting. Each member receives this 400 page volume of the transactions of the Association.

Year Book and Directory. Complete list of members, including addresses.

Index to subjects covered in the various publications of the Association.

Information Service. The Executive Office maintains voluminous files to answer members' questions.

APPLICATION FORM

National Fire Protection Association, 60 Batterymarch St., Boston, Mass.:
Please enroll me as an associate member and forward the publications to which members are entitled. I understand that membership does not commit me to any course of action. Check which of the following applies:

☐ I am enclosing $10 (check or money order) for the annual dues.

☐ Please bill me for $10 as my annual membership dues.

Name .....

Rank or Business Connection .....

Address

NEW CATALOGUES

This department is for the convenience of readers who wish to be advised of new products or services in the fire field. When writing for catalogues please mention VOLUNTEER FIREMEN

•

Aluminum Ladder Company, Tarentum, Pa. 16 page catalogue describing complete line of aluminum ladders.

American District Telegraph Company, 155 6th Ave., New York, N. Y. Two color, 30 pp., illustrated booklet, "Backing Up the Sprinkler." Describes sprinkler supervisory service.

W. S. Darley & Co., 2810 Washington Blvd., Chicago, Ill. 68 pp. illustrated sales book No. 115 covering a complete line of fire equipment.

Durkee-Atwood Co., Minneapolis, Minn. Two colored bulletin describing a Twin Beam Emergency Light.

Federal Electric Co., 8717 South State St., Chicago, Ill. Bulletin No. 62. Details of Federal sirens.

The Fyr-Fyter Co., Dayton, Ohio. Four page, two color bulletin describing 40 gallon "Instant" anti-freeze extinguisher for mounting on a truck or trailer.

Gamewell Co., Newton Upper Falls, Mass. Illustrated bulletin entitled, "Delayed Alarms," showing serious fires which may result from delays in sending alarms.

Mine Safety Appliance Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa. Bulletin No. FA-63 describing M. S. A. fire blanket.

D. B. Smith & Co., Utica, N. Y. Catalogue describing Indian Fire Pumps for forest, brush, grass and spot fires.

Solvay Sales Corp., 40 Rector St., New York, N. Y. 28 page booklet describing anti-freeze fire equipment for industrial plants, warehouses and farms.

S. H. Thomson Mfg. Co., Dayton, Ohio. Bulletin describing The Pistol-Grip self-contained combination floodlight and searchlight throwing a 2000 foot beam.

•

Spontaneous Ignition In Peanut Skins

One of the important committees of the N. F. P. A. is that charged with the study of spontaneous ignition. The committee wants reports of any fire it can get which may throw light on this elusive subject. They are specially glad when they get a report such as that turned in in November by the fire department of Reading, Mass. Fire on a farm in the town started in the center of a pile of bagged peanut skins used as cattle feed where it had been smouldering unnoticed for several days. The importance of this report may be judged from the fact that this is only the second case on record of such a fire.

$10.00 EASY MONEY

PYRENE PRIZE LETTER CONTEST

THE first prize winner this month is so appreciative of the work of a fire extinguisher in saving his automobile several years ago that he is asking readers of VOLUNTEER FIREMEN to help him find the owner of the extinguisher so that he can pay the cost of refilling it with part of his prize money. No persons are in a better position to judge the effectiveness of approved fire extinguishers than the fellows who use them. That is why in the Pyrene Prize Letter Contest firemen win cash prizes for telling of actual cases where extinguishers saved a life or made a good stop. If you know of a fire where good work was done with an extinguisher just tell the facts in your own way. The contest is sponsored jointly by the Pyrene Manufacturing Company of Newark, N. J., and VOLUNTEER FIREMEN.

FIRST PRIZE—$10.00

J. E. STRIKER,
Fire Department, San Jose, Calif.

Wants to Pay for Refill

"Some years ago I purchased a Model T Ford car of questionable vintage and after many hours work had it in running condition. On the first trip the carburetor was ignited from a leaking exhaust gasket and in no time the engine was a mass of flames. After a futile attempt to extinguish the flames by throwing dirt upon it a good samaritan forced himself through the crowd with a 1-quart carbon tetrachloride extinguisher and quickly extinguished the flames. To express my appreciation I secured the man's name and address promising to send him a refill. However, I lost the address and have never been able to repay the man. If by chance he should read this and identify himself I would be glad to fulfill my promise."

SECOND PRIZE—$3.00

LESLIE L. KROUSE, *Chief*
Fire Department, Pomeroy, Wash.

Firemen Were Amazed

"A short time ago our rural crew responded to an alarm from the State Highway Department garage located 12 miles west of Pomeroy. The garage was a wooden structure 35 by 70 feet and contained a large amount of road and lubricating oils. The fire was caused by an explosion of gasoline vapor caused by a lighted match. The explosion blew the door shut trapping a patrolman's wife and daughter who had just entered the building. They were forced to leave through a small window and received painful burns. The District Supervisor who happened to be on hand saw the fire. He got a 1-quart carbon tetra-chloride extinguisher from his car and emptied it through a broken window near the gasoline pump where the fire started. This knocked down the major portion of the fire and the remainder was extinguished with a garden hose. Imagine our amazement upon arriving to find the fire completely out with no external signs other than two broken windows. Inside of the building about one fourth of the ceiling and wall area had been badly scorched."

THIRD PRIZE—$2.00

CLIFFORD E. DIETERLE,
Fire Department, Attleboro, Mass.

Water Spread Fire!

"An autoist who believed in preparedness carried a 5-gallon can of gasoline in the rumble seat of his car. In some unknown manner this ignited and set the car afire. The driver immediately called the fire department and then, as a garden hose was handy, tried to put out the fire with water. The stream spilled the contents of the gasoline can. The water spread the gasoline and when the fire department arrived the entire car was a mass of flames. We at once opened two foam extinguishers and had the fire out in a couple of minutes. This was a good example of the effectiveness of foam and the futility of water on gasoline fires. The foam put out the fire so quickly that the car radio was still playing when we left."

HONORABLE MENTION

FRED H. ELDRIDGE, Fire Department, Glens Falls, New York

DONALD C. GOTTSCH, *Secretary*, Phoenix Hose Co. No. 1, Babylon, New York

LEE JOHNSON, *Chief*, Fire Department, Sanger, California.

WILLIAM S. KEARE, Parkside Fire Co. No. 1, Chester, Pennsylvania

HANS SEVERSON, Volunteer Fire Department, Columbia Heights, Minnesota

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.
2. Letters are to describe actual experiences where an approved fire extinguisher of any make has saved lives or property.
3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.
4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experience.
5. Only one letter may be submitted each month.
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.
7. Letters received after the 8th of the month will be judged in following month's competition.
8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, 2.00.
9. Address contest letters to Pyrene Prize Letter Contest, National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

Publications on Fire Subjects

Write for a complete list of N.F.P.A. publications. Following is a partial list of popular and useful books and pamphlets available at the prices quoted. Address: National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

Automatic Sprinkler Systems, Use of by Fire Departments. General principles of fighting a fire in a building equipped with automatic sprinklers.
12 pages, 2 diagrams .....10 cents.

Water Systems for Fire Protection on Farms. A pamphlet prepared by N.F.P.A. Committee on Farm Fire Protection to suggest ways and means for the most efficient utilization of available water supplies in extinguishing farm fires and to present essential features needed to give reasonably adequate fire protection when new water systems are contemplated.
12 pages, 7 illustrations .....10 cents.

Lightning, Code for Protection Against. Nine tenths of the 400 annual deaths from lightning and a large percentage of the property loss due to lightning occurs in rural districts. Lightning rods have demonstrated that they will give buildings positive protection from lightning if properly installed. This publication shows how to install them. Also covers lightning protection for smokestacks, aircraft, ships, trees and live stock in fields.
40 pages, 6 illustrations ..... 15 cents.

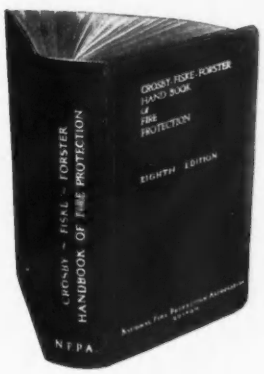
Carbon Dioxide Fire Protection. By Robert S. Moulton, Technical Secretary, N.F.P.A. Use of this form of protection in electrical equipment, manufacturing processes involving flammable liquids, fur vaults and record protection. Characteristics of carbon dioxide, its smothering action on fires, its cooling effect as compared with water and its action on burning gases, liquids and solids. Description of carbon dioxide extinguishing devices, their advantages, limitations and suitability: portable extinguishers, permanent piped installations, electric power house installations, dip tank systems, and room flooding systems.
20 pages, 13 illustrations .....20 cents.

School Fires. A record of 875 school fires reported to the National Fire Protection Association. Includes the story of the Collinwood, Ohio, school fire in which 173 children and 2 teachers perished and 6 other major school disasters involving a total loss of life to 198 persons. Analysis of the fires tabulating causes, type of buildings, places of origin of the fire and the like. Selected reports of typical fires illustrating points of special interest such as the effectiveness of automatic sprinklers and the value of fire drills.
34 pages, 25 illustrations .....25 cents.

Hospital and Institution Fires. A record of 202 hospital and institution fires reported to the National Fire Protection Association. Includes the story of the Cleveland Clinic fire where 124 people died as the result of the hazard of x-ray nitrocellulose film and seven other major disasters involving a total loss of life to 228 persons. Analysis of the fires tabulating causes, type of buildings, places of origin of the fire and the like. Selected reports of typical fires, illustrating points of special interest such as the effectiveness of automatic sprinklers and the value of fire drills.
68 pages, 37 illustrations .....35 cents.

THIRD PRINTING N.F.P.A. HANDBOOK

6,000 Copies of Eighth Edition Sold



1154 pages; 4¼ x 6½
242 illustrations, 161 tables
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INTERNATIONAL
60 Batterymarch St., Boston, Mass.

RURAL FIRE DEPARTMENTS

I. Equipment, Apparatus

II. Organization

III. Volunteer Fire Department Ordinance and Rules

IV. State Legislation for Fire Department Organization

32 Page Pamphlet Prepared by N.F.P.A. Committee on Farm Fire Protection; Adopted by National Fire Protection Association.
Single copies .....20 cents.

National Fire Protection Association
INTERNATIONAL
60 Batterymarch St., Boston, Mass.

A Fire Department Manual

Hose

and Hose Couplings

a substantial manual of 44 pages, 6 in. by 9 in., 11 illustrations, containing informative material on the selection, care and testing of hose and hose couplings, compiled from recommendations of N.F.P.A. committees and other authoritative sources. Manual shows how to load hose so as to prevent deterioration and how to handle it at fires to avoid unnecessary damage. Includes a detailed set of specifications for use in buying hose.
Single copies .....25 cents.

Put a copy in the hands of every fireman in your department.

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FEDERAL ELECTRIC COMPANY
8717 SOUTH STATE ST., CHICAGO, ILL.

A Model Records and Reporting System for Fire Departments

Size of book, 8½ x 11 inches
87 pages, 27 forms, 7 figures
Price, $2 each, postpaid

This manual suggests a detailed and well-rounded plan that should help to solve many of the problems that now confront fire chiefs in small as well as large cities and towns. It shows how a records and reporting system should operate. It includes copies of the 27 forms considered important in fire department work.

The record forms contained in this book have met with such acceptance by fire chiefs and fire departments that most of the forms have now been separately printed to meet the demand of departments wishing to purchase supplies of the blanks. Write for a price list for the various record forms. If your department has not yet obtained a copy of the Model Records and Reporting System book ask for a circular describing it so that you will have full information on the many reporting blanks available.

National Fire Protection Association
INTERNATIONAL
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— *Protect Earnings* —

Earnings depend upon production. Fire interrupts the continuity of business and is reflected in the loss of uninsurable values far greater than the replaceable physical values destroyed. *Delays* in *discovery* and *announcement* – the principal causes of large Fire Losses—are minimized by Gamewell Fire Alarm Systems.

The Vitaguard Fire Alarm System in addition to facilities for manual operation embraces also the automatic fire detecting feature which discovers Fire in its incipiency and automatically announces the location. For the smaller communities Vitaguard affords ideal public fire alarm protection with convenient facilities for extending the protection to the interior of private properties and institutions.

AUTOMATIC FIRE DETECTOR
TYPE SF-4

AUTOMATIC FIRE DETECTOR
SPRINK-LA-STAT

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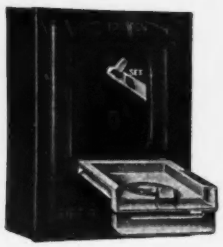

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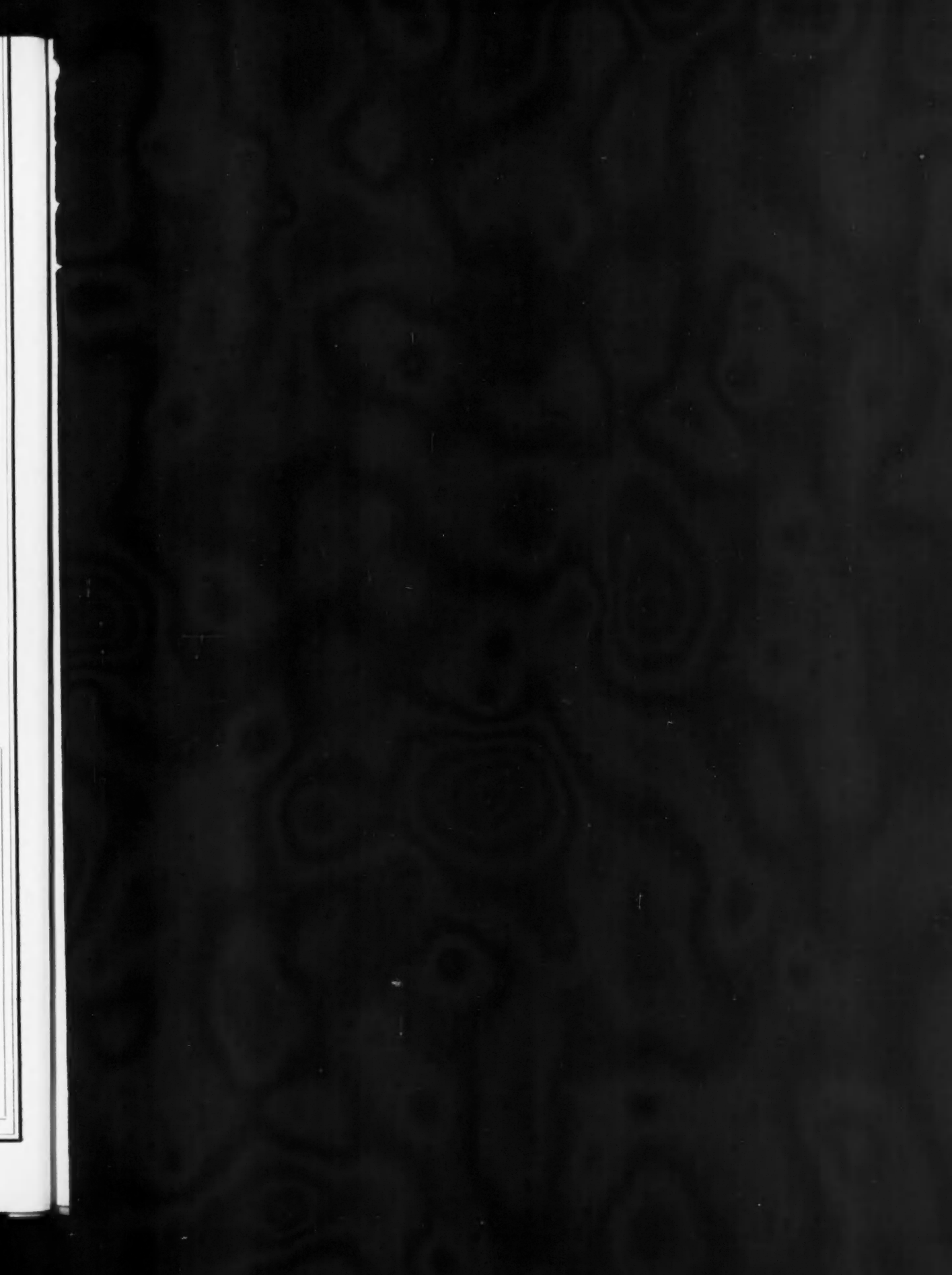
2000 Municipalities